# WESTERN UPDATE #64

THE WESTERN NEWSLETTER FOR MF, LF, AND VLF EXPERIMENTERS

*Available for business-size 25 cent SASE's, plus 60 cents per issue (or $7 per year)*
*from: Jim Ericson, 226 Charles St., Sunnyvale, CA 94086-6063*

## ACTIVE WESTERN BEACON STATUS (LIST COMPILED April 15, 1989)

| FREQ(kHz) | IDENT | QTH | SKED INFO |
|---|---|---|---|
| 163 80 | FPV | Granada Hills, CA | Weekends. See alt. freq. 182.62 kHz |
| 163.88 | M | San Diego CA | 24h/7d. |
| 164 9 | T (dashes) | Sunnyvale, CA | 24h/7d. A2 modulation (+/- 760 Hz) |
| 166.503 | C | near Morro Bay, CA | 24h/7d. |
| 167 25 | AHN | Fallbrook, CA | 24h/7d |
| 169.96 | NRE | San Diego, CA | 24h/7d |
| 175.225 | MAX | Wheatland, WY | 24h/7d CW. BPSK/ASCII by request |
| 175.703 | FAW | Orem, UT | 24h/7d. |
| 176.26 | CO | Glenwood Springs, CO | 24h/7d Bob Cutter. |
| 176.75 | SR | Elgin, OR | 24h/7d. |
| 176.85 | 7FS | Belfair, WA | 24h/7d |
| 179.0 | MPM | Salt Lake City, UT | 24h/7d. ASCII/CW alternating 5minutes. |
| 179 54 | WJ | Arleta, CA | Intermittent. |
| 180.224 | F | Los Banos, CA | FSK. By request. |
| 180 80 | XU | Sioux Falls, SD | 24h/7d. BPSK/CW alternating 5 minutes. |
| 181.17 | IZJ | San Gabriel, CA | Daily. Silent 0700 to 1100 UTC. |
| 181.288 | MEL | San Jose, CA | 24h/7d |
| 181.71 | TLX | San Rafael, CA | By request. Steve McGreevy. |
| 182 6+/- | QLF | Santa Monica, CA ??? | Unknown. (Heard by F. Cathell). |
| 182.62 | FPV | Granada Hills, CA | Weekends See alt. freq. 163.80 kHz. |
| 182.672 | G | Palo Alto, CA | 24h/7d. |
| 182.88 | H, H2 | Descanso, CA | 24h/7d. Alt. Freq = 166.90 kHz. |
| 183 160 | PRK | Saratoga, CA | 24h/7d. |
| 183.63 | PLI | New QTH Burbank, CA | Unknown. |
| 184 016 | EK | Sunnyvale, CA | Intermittent. |
| 184.32 | N3S | Mocksville, NC | Intermittent tests. |
| 184 383 | TI | Kingman, AZ | 24h/7d. Rex Wilson. |
| 184.39 | HO | Pahoa, HI | By request. |
| 184 43 | V | Forestville, CA | 24h/7d |
| 184.46 | B | Fresno, CA | 24h/7d. Boyd Skillin. |
| 184 80 | T (dashes) | Mountain View, CA | 24h/7d |
| 185.0 | ZYK | Redway, CA | 24h/7d. |
| 185 00 | AU | Champaign, IL | 0100 to 0600 UTC, 7 days. |
| 185.49 | AZ | Tucson, AZ | 24h/7d. Alt. Freq. = 187.77 kHz. |
| 186 80 | BA | Lancaster, IL | 24h/7d. |
| 187.0 | ELU | Simi Valley, CA | 24h Saturday and Sunday on SSB. |
| 187.252 | TEXAS | NW of Ft. Worth, TX | 24h/7d |
| 187.30 | UPN | Cincinatti, OH | Occasional. |
| 187 50 | DCH | Berlin, MD | 24h/7d. |
| 187.50 | J | Los Angeles, CA | 24h/7d |
| 187 59 | SM | San Jose, CA | 24h/7d |
| 189.84 | R | Nevada Test Site | 24h/7d. |
| 190 4 | OHH | Richmond Hill, Canada | Occasional testing |
| 530.+/-.76 | T (dashes) | Sunnyvale, CA (WA6AJY), A2 mod | 24h/7d. Ed Gelinas. Simulcast with T at 164 9. |
| 1624 75 | CT | Pleasant Gap, PA | 24h/7d Clint Turner. |
| 1637.49 | SS | San Rafael, CA | By request. Steve McGreevey. |
| 1655 5 | CO | Glenwood Springs, CO | 24h/7d Bob Cutter. |
| 1658.062 | Z2 | 9 mi. NW San Simeon, CA | Intermittent. Mike Mideke. |
| 1661 35 | U | San Diego, CA | Nites only. Steve Meyerpeter |
| 1687.28 | D | Descanso, CA | 6PM to 6AM daily Frank Cathell |

Non-Western listings are beacons currently being copied in the West, or they have SASE's on file with us.

**EK NOTES/MAILBAG**. WU*64 has been a bit delayed, for a couple of reasons. First of all, reader input has been pretty thin in the last few weeks. Seems that a lot of LowFERS are just busy with other priorities, and in the process of trying to determine where to invest limited 'experimental' time and energy. Also, I have personally been preoccupied with a job transition, having recently been newly employed as director of quality and realiability assurance with a small local company in the business of making mixed analog-digital specialty semiconductors.

Since the last issue we had an impromptu "mini-lowfer-convention" here in California. **Herb Balfour**, editor of the **Northern Observer** LowFer Newsletter in Canada dropped in for a visit, meeting with California experimenters. A delightful technical and personal exchange, and I hope that someone next year will volunteer to help organize a more comprehensive convention.

Activity at **EK** has been pretty much limited to continued monitoring of 76.2 kHz for solar flares (a joint project with **Mike Mideke and Mitchell Lee**). I continue to provide occasional traffic service to Mike Mideke via my **EK** LowFER beacon, and try to remain as active as possible on the two **LowFER ham nets** (Thursday's at 8pm on 1987.5 kHz LSB, Sunday mornings at 7:30 AM on 1927 kHz LSB).

**Ron Barlow** of N.C. writes, "I constructed a **Mike Mideke** 'Simple Beacon' and encountered a small problem. I should have known better, but I used a disc ceramic capacitor for C5. Many discs, particularly those having a relatively large value of capacitance are not NP0 types and their actual capacitance is quite temperature dependent. The result was that the IDer speed was very much affected by the ambient temperature. Replacing the ceramic with a mylar capacitor cured the problem. In listening for MedFER beacons since early March I've heard **ABC** at 240 miles, **CT** at 415 miles, and **30HH** at 560 miles. I also copied **WI** on 3/11, which was my first successful reception of a LowFER beacon! I expect to have a legal beacon activated sometime in April using **A** as an ident, and will be on 1625.5 or 1631.5 kHz."

**Rick Wright** informs, " I am taking the LowFER beacon **ISUN** off the air. Downtime is indefinite, but I fully intend to return to the hobby when the work-related responsibilities ease up. I will attempt to keep up with the newsletters in the meanwhile."

**Keith Olson (7FS)** reports a new LowFER antenna...a vertical (45 feet) helix using litz wire. Inductance per ten foot section is 1 mH. Resonant counterpoise, tophat 7 foot each radial. "Signal strength not fully investigated, but very good."

**Bob Cutler** reports **CO** back on the air "both 176.26 kHz and 1655.5 kHz. New antenna and QTH for VLF. No reports on MF as yet. I did copy **R** very well Feb. 22 and 23."

**Mark Mallory (MPM, Salt Lake)** stopped in the Bay Area while on a business trip in March. His beacon has been off since Thanksgiving, but will be up soon with a new loading coil made of Carrigan-Lewis 175/40 Litz wire. Nice seeing you Mark!

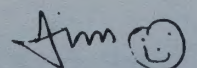
**Rex Wilson (KB7TI, LowFER TI)** is on the air at 184.383 kHz from Kingman, AZ...and being heard just fine in California! Rex is working on improving his receive capability using a Burhans amplifier and a 6.5 foot diameter loop on the roof. So far he has heard **R, FPV, H, D** and **Z2**.

**GWEN INFO: Don Stewart of Bakersfield, CA** forwarded copies of two good articles about GWEN. Monitoring Times, November 1988, and Popular Communications, March 1989.

**Other publications**: Subscriber **Jim Weiss** of Illinois published a fascinating article in the January 1989 QST (page 37) titled, "Notes on Resonant Speakers for Enhanced CW Reception." Definitely must reading for weak-signal CW listeners!

Radio Electronics magazine, May 1989 carried an article listing **WU** and other LowFER newsletters, but unfortunately failed to mention that SASE's are required along with the subscription cost. Please pass the word that the **WU** is available for $7 per year ($10 would be ok!). PLUS twelve business-size 25-cent SASE's.

**Let's hear from you about your activities!** We need construction articles, photos, and whatever in order to keep the Western Update interesting and useful. Also remember to keep us up to date on your beacon status, and any address or call sign changes. Have a great spring, and 73 de **EK**!!





BARGAIN CRYSTALS

by: Mike Mideke San Simeon, CA

For many years CW CRYSTALS has provided a variety of crystals for radio amateurs and experimenters. I recently ordered a number of crystals and, when they arrived, found numerous enclosures, including QRP transmitter plans, instructions for renewing amateur licenses and advertisements for crystals. Most interesting was a long list of CR-7 crystals (they look similar to HC6-U and fit HC6U sockets). Here is the list of frequencies that come out on 1750 meters when divided by 32:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5135 | 5185 | 5200 | 5202 | 5215 | 5235 | 5237 | 5259 | 5269 | 5289 | 5304 |
| 5333 | 5339 | 5364 | 5389 | 5402 | 5422 | 5437 | 5439 | 5452 | 5464 | 5467 |
| 5481 | 5489 | 5511 | 5514 | 5519 | 5526 | 5535 | 5539 | 5544 | 5552 | 5556 |
| 5564 | 5585 | 5589 | 5602 | 5604 | 5614 | 5630 | 5633 | 5635 | 5639 | 5652 |
| 5659 | 5685 | 5689 | 5702 | 5704 | 5714 | 5722 | 5733 | 5739 | 5748 | 5752 |
| 5777 | 5781 | 5785 | 5789 | 5802 | 5814 | 5819 | 5827 | 5830 | 5835 | 5837 |
| 5839 | 5852 | 5869 | 5897 | 6014 | 6019 | 6023 | 6027 | 6035 | 6039 | 6048 |
| 6052 | 6077. | | | | | | | | | |

For those who prefer a divide by 40 exciter, there are also a few freqencies: 6430 6519 6548 6552 6578 6581 6585 6607 6619

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 6637 | 6652 | 6667 | 6669 | 6681 | 6685 | 6719 | 6726 | 6752 | 6756 | 6785 |
| 6815 | 6819 | 6837 | 6844 | 6852 | 6874 | 6885 | 6904 | 6919 | 6933 | 6952 |
| 6963 | 6976 | 6985 | 7437 | 7481. | | | | | | |

Crystals are specified as plus or minus 1 kHz, for 28 pF load. It is suggested that 2nd and 3rd choice frequencies be provided if possible.

Price: 1 to 9 crystals- $1.95 each, ten or more units $0.89 each. Single crystal postage - 50cents, multiple crystals 35 cents per crystal. CR-7 sockets available for 95 cents each.

Address: CW CRYSTALS. 570 No. Buffalo St. Marshfield, MO 65706.

You can get 10 frequencies for less than the price of a single LF crystal. Frequency stability will be better and transmitter construction tends to be easier when the oscillator is NOT on the transmit frequency. CMOS or TTL dividers are inexpensive, reliable and easy to build.

BPSK (and some other stuff) Report M. Carter

Not a great deal of LowFER news to report from here this winter. I haven't heard anybody except FAW, due more to my not listening than to any propagation problems.

My main activity is still fooling with LowFER BPSK. My receiver is now at the point in it's development where virtually all signal processing after the second IF amplifier is accomplished digitally. The present circuit works just fine, but uses gobs of CMOS chips. Future refinements will probably be in the area of replacing all the CMOS with one or more microprocessors. For example, Mark Mallory tells me he has put an 8748 processor to work in his receiver to convert the recovered raw serial data to a 20 character LCD display readout. I see no reason why this line of development couldn't be applied just as well to the filtering and carrier recovery portions of a BPSK receiver. If development ever gets this far, BPSK could be in use more commonly in the LowFER community.

I copied the MAX beacon in BPSK/ASCII mode @ 1 BPS near Las Vegas, New Mexico, a distance of 435 air miles, during daylight hours on March 3. This copy more or less confirms what I thought the system was capable of (400 miles, groundwave) when I began this adventure, but the 1 bit per second speed is cheating in a way, since it has a mathematical 10 dB S/N advantage over 10 BPS, the speed used in earlier tests. Whether or not the present receiver is realizing the full advantage of the slower speed, I haven't determined yet.

On the other hand, however, the transmitting antenna I'm now using at MAX is less effective than in previous years' tests. Last summer ('88) I got the wild hair idea to improve the MAX antenna by increasing its height from 31' to 40'. I ended up with the extra 9' height but, partly to minimize the effects of the wind, installed a much less extensive tophat. According to Mark's antenna characterization program, it's radiating a couple of dB less effectively now, in spite of the increased height!

Incidently, this antenna program of Mark's, I think, will revolutionize LowFER antenna design. It allows you to optomize your design before you stack any steel! He tells me he isn't quite ready for LowFERs to beat a path to his door - he's in the process of translating the program from Basic to C, which will increase its speed by a factor of 10 and allow it to run reasonably fast on something less than a '386 - but will eventually make it available to all. - Max

**VLF MEETING AT DAYTON**

The second annual informal meeting of _SPELEONICS_ readers, LF/VLF experimenters, and hams interested in cave exploring and "cave radio" will be held at the Dayton Hamvention on Saturday, April 29 at 11 AM local time.

Place: Seats (!) above the main indoor arena (big room containing major manufacturers' exhibits), in the South corner, behind DARA booth (to right of main entrance), top level. A carbide lamp will mark the spot. Show/tell, trade equipment, share information (including flea-market locations of interesting items), or just say hello. Bring lunch if you wish (recommended; hamfest food is awful! :-(* We will monitor 147.64 MHz, RFI permitting.

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Frank Reid W9MKV
reid@gold.bacs.indiana.edu

**NEWS FROM EAST TO WEST**

by: Herb Balfour, editor Northern Observer: Eastern Newsletter
91 Elgin Mills Rd. West; Richmond Hill; Ontario; L4C4M1; Canada
March, 1989

I suppose the news here is the continuing growth of MedFERS stations being commissioned, their numbers swelling monthly: NH(NJ); QYV(PA); CT(PA); TUG(MD). W. Medfers of note are Steve McGreevy, CA.(SS); and recently QSY'd upper MedFER beacon U by Mike Mideke, CA. on 1657.5 khz. Much success following the change from 514.127. A steady, parallel growth of returning/new LowFER stations: ONT: 3OHH, VE3OBE, OHH now on firm skeds; TUG(MD); 1SUN(OK); N3S(NC); ODE(SC); 3KLR(PA); YHO(OH); AU(IL); JR(CT); XU(SD); JPH(MD) to name some changes/ additions. The reception by most serious DXers East of the Mississippi of the Navy SPAWARS tests on 184.9 khz. is continuing. Site: Bumpass, VA. They do QSL, by the way.

We have very strong, dedicated support in terms of articles being submitted to The Northern Observer, and I really must take this opportunity to pat our collective memberships' back for making my job a pleasant and fascinating one! Problems and questions are being solved, stations and equipment are being improved as a result. It's indeed a warm feeling to know that you are not alone, and help is available.

Unidentified beacon MS was ID'd by Dave Raney,OH(UPN) as belonging to Mike Stidham, in Scottsburg, IND. QSL's to his brother, Mark (AI9Y). A transcontinental 1750M relay was attempted on Jan. 21/89, with little advance notice and planning. The next one will succeed where that one failed, however, if we are all involved and aware that it is taking place! It sure came close, though, and proves that we will succeed!

The N-O now includes beacon grid square locators, and may go to geographical co-ordinates in the near future. We are now at 24 pgs per issue, and the problem at hand each month is what will make the "cut"! Next month the remainder is published, insuring publication of your submissions. The RESOURCES section is added to monthly, that being other publications and newsletters in related fields, and updated. New features include: ongoing base for cataloguing applicable computer programs and refernce articles/texts, yearly indexes, maps and "THE BEST OF" the past year's articles publication are underway. Medium wave transmitters, auto-tuners for LF and MF beacons have been featured and updated as construction articles, the whole experimenter's gambit is healthy, supportive and growing ! I am publishing the N-O #8 from the world headquarters of THE WESTERN UPDATE here in Sunnyvale, CA. from Jim Ericson's QTH here in March, and we are trading our page of news at this time. Hope I can return the favour for Jim in the near future, and we can send out both issues from Canada!

Bellydraggin' by Dave Johnson, CA.(F) continues as a VLF and LF flavoured column. A LOGBOOK section and NEW PRODUCTS area are currently being fielded. Reprints of both classic and new articles appear in the N-O in more volume and by the installment method over the next year. A recent exposition of alternate modes of communication was typified by articles by Bill DeCarle, ONT.(VE3OBE) and Max Carter, WY.(MAX) with more to come. A number of excellent articles by Rick Wright, OK.(1SUN) continue, centering on VLF and ULF reception, transmission. Elea Mideke, CA.(WD6DVG) continues to improve the appearance and break up all that text with her artwork. A QSL card or two are featured each issue, and from 3-7 pages of letters. Boy, do we get letters! A change to columnular type has also improved things, I feel. What is REALLY nice is the growth that an article takes after appearing in the 'letter. Comments, revisions, critiques all seem to pour in.

Net activity: evenings, particularly SUN. (E.S.T.): 1983.5 khz.

That's all for this this installment of the E->W exchange.

Best 73's from both the N-O and OHH...

# OPTIMIZING THE LF ACTIVE WHIP

by Frank Cathell (K)

Over the past winter I have been experimenting with several variations of low frequency, broad band active whips from two to 10 feet long. The whips have included the LF Engineering L-400B, the older Burhans' A-86 whip with the J310 J-FET amplifier circuit, and the newer Burhans' version of the A-86 utilizing a 2N7000 Mosfet in the whip preamp. The L-400B was bought commercially while the Burhans versions were home made. Experiments involved whip length variations, height above ground, physical location and proximity effects, power supply (coupler) operating voltage, receiver coupling capacitance, and grounding. I should also mention that additional experimental active whip data were provided by Steve Meyerpeter (NRE), Dave Holland (DCH), and Greg Farkas (AZ).

The following general statements can be made about all of the active whips once they were optimized:

1. For best performance they must be located in the clear as far away as possible from trees and especially away from houses, power lines, other antennas or anything metallic.

2. Once the base of the antenna was about 15 feet above ground no further increase in height improved reception.

3. The active whips will outperform all wire antenna/tuner combinations of less than 1000 feet. Only wires of at least 1/4 wavelength minimum at the operating frequency started showing any improvement over the active whips.

4. Grounding the antenna coax feed line shield at the antenna (to a metallic mast or an earth ground wire) for best sensitivity and minimum intermodulation problems seemed to depend on the physical location and proximity to surrounding objects. In some cases it was best to leave the grounding point back at the receiver coupler unit and in others an additional ground at the antenna produced significantly better signal to noise ratio.

In terms of optimizing the specific active whip combinations, the following results were realized:

L-400B: The value of the coupling capacitor between the coupler unit's antenna input jack and the receiver output jack was very critical for optimum performance. The original .01 uf value in the stock coupler appeared to be too large. A value of 470 pf to 1000 pf greatly reduced overloading in the receiver and significantly reduced intermodulation problems. This was found to be consistently true on several different receivers. Although the apparent gain was reduced the overall S/N ratio greatly improved. Variations in the power supply voltage level (simulating battery variations) in the coupler seemed to have minimal effect on the performance of the antenna although the gain started to drop once the voltage fell below 10 volts. Since this antenna was sealed in a 2.5 foot piece of pvc pipe, no length experiments were made.

Burhans A-86 with J-Fet Amplifier: This active antenna's performance varied depending on the gain of the J310 J-Fet transistor that was installed in the amplifier circuit. The gain and intermodulation rejection were also extremely dependent on the power supply voltage. Optimum performance with minimal intermod occured between 9 and 11 volts dc. Supply voltages over 12 volts produced a drop in gain and non-linear amplification with a subsequent increase of intermod signals. Voltages below 9 volts resulted in significant gain loss. This antenna was also sensitive to the length of the whip element. Approximately 6 to 8 feet seemed optimum. Longer lengths produced increasing intermodulation problems, particularly when used near or in the city. This antenna also drew a fairly high operating current of about 43 milliamps with a 10 volt supply. This would drain a 9 volt battery in a very short period if used in a portable mode. The receiver coupling capacitor in this circuit needed to be .1 uf or higher for best signal coupling to the receiver.

A-86 Circuit Using Mosfet Amplifier: This is the latest update of the Burhans' whip amplifier circuits and it definitely seemed to be an improvement over the J-Fet version. No detectable intermodulation problems were noticed when the power supply voltage was varied from 9 to 18 volts. The amplifier gain did start to drop significantly below 8 volts but this would be expected. Several different 2N7000 Mosfets were placed in the circuit but no detectable performance difference was noted between them. At a 12 volt supply voltage the current drain was about 33 milliamps, which is high but not as bad as the older J-Fet version. This circuit also required a .1 uf or larger receiver coupling capacitor. This circuit seemed to be optimum with a whip length of about 9 to 10 feet, although no intermodulation problems were encountered with 100 feet of wire attached to this circuit. Surprisingly enough, the 10 foot whip performed better than the 100 foot wire due to less noise pickup.

In summary the general performance of the L-400B or the Mosfet version of the Burhans' active whip was excellent considering the small size of these LF antennas. The Burhans' J-Fet amplifier seemed to be quite temperamental to supply voltage variations and whip length, and had more intermod problems than the other two. Although the L-400B is extremely portable and seemed to have a slight gain edge over the Mosfet A-86, the latter antenna had less intermod problems when operated in the city. Anyone interested in serious longwave listening who cannot string out a 1500 foot (or longer) wire could not go wrong with either of these active whip antennas when optimized.

**ORDER FORM**

Please use this handy sheet for filling out your order.

QUANTITY: KIT #: PRICE

_____

_____

_____

_____

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_____

TOTAL: _____

CA. residents add 6 or 6.5% sales tax.

SALES TAX: _____

TOTAL: _____

(Please send only check or money order!)

JA2A beacon keyer message:

1. _____

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2. _____

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3. _____

_____

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4. _____

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Comments: _____

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## SNB1288
## SYNCHRONOUS NOISE BLANKER

The Seden Communication noise blanker is designed to aid reception over the entire L.F. spectrum by eliminating repetitous interference such as light dimmers and similar devices common in suburban areas.

Features 4 seperate channels, with independent phase and width control for each channel. Easily connects between receiver and antenna with minimal insertion loss. Easy to build, of course!

SNB 1288 Kit price: $34.95
(Kit available after 2/15/89)

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## 80AU
## 80 METER ACTIVE UPCONVERTER

For the person who enjoys both portable and stationary L.F. listening we introduce two units in one. The 80 AU is both an active whip that receives the entire 5 thru 450 KHz spectrum plus an upconverter that superimposes this to the 80 METER AMETEUR BAND.

Low pass filtering and balanced circuitry provide good out of band rejection. Can be powered either by remote Phantom power or by a 9 Volt battery.

Requires 102" steel CB whip, Case included.

80 AU Kit price $39.95.


GUDAY COMMUNICATIONS
852 N. Lima St.
Burbank CA 91505

Mr Jim Briscoe
226 Charles St.
Sunnyvale CA 94086


VANBUYS CA
PM
2 MAR
1989

Jack London

# SEDEN
## Communications

*Fine Kits For The 1750 Meter and Long Wave Enthusiast*

Seden Communication is proud to introduce to you a complete line of 1750 meter and long wave equipment for 1989.

All kits and accessories in this brochure were created and tested by long wave and 1750 Meter enthusiasts and were designed for the serious hobbyist that wants results. Only proven, time-tested circuits are used with ease of assembly. All toroid transformers are custom wound by hand.

Whether your interest lies in beacon hunting or practical communication on 1750 meters, all kits are designed to help you overcome any of the difficulties that might be encountered, in what many consider the most challenging group of frequencies in the R.F. spectrum.

A great deal of interest has emerged regarding the 1750 Meter band, opening up many new challenges for appliance-weary hams, and non-hams who are looking for new ground to explore. Part 15 of the FCC rules and regulations indicate that no license is required to transmit between the allocated frequencies of 160 to 190 KHz. To this date, many experimenters are using SSB, CW, and even AMTOR, PACKET, and RTTY, as well as other more advanced state-of-the-art forms of communication over hundreds, and sometimes even thousands, of miles making 1750 one of the most interesting and state-of-the-art bands ever. Once considered a "Neglected Band" from frustration to antiquity, 1750 Meters now holds promise and new interest, using modern and improved electronics such as these do-it-yourself kits. Our aim is to help you achieve your goal within the L.F. spectrum.

## THE SAM 1 TRANSVERTER

The SAM1 Transverter provides one of the easiest ways for any amateur operator to enjoy 1750 Meters, and allows superior performance of all modes limited only by the capabilities of the H.F. Transceiver.

Using the latest state-of-the-art technology, the SAM1 Transverter will convert any 80 Meter Amateur Transceiver into a complete two-way 1750 Meter station. The SAM1 connects directly to the Transceivers SO-239 R.F. port and powered by a separate 12 volt D.C. supply. Individual 1750 Meter Receive/Transmit ports allow flexibility for using separate Receive antennas, such as tuned or untuned active whips or Seden Communications LP2A loop preamplifier. The SAM1 includes a -10Db pad for use during strong signal reception, 5 element low pass Chebyshev filter for broadcast band rejection, and "through" capability that bypasses the transverter when it is off, resuming normal use of the H.F. transceiver. During reception, the 80 meter transceiver is capable of broadband reception from 3 to 480 KHz, allowing complete coverage of the L.F. spectrum.

During transmission, the 80 meter signal is converted to 1750 Meters, only a few watts of power from the transceiver is all it takes for full legal output on 1750 Meters.

The kit includes all parts, pre-wound transformers and toroids, circuit board, and complete instructions. Many excellent short articles are reprinted with permission by the author explaining effective receiving and transmitting techniques.

The SAM1 is already used successfully in two-way single sideband, C.W., and even digital communications, such as Amtor, Packet, RTTY, and digital C.W.

Complete SAM1 Kit $69.00 postpaid.

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## JA2A BEACON KEYER

I wish something like this was on the market years ago, but it's never too late.

The JA2A Beacon Keyer is what any 1750 Meter enthusiast needs for continuous beacon identification. The unit features four selectable channels, with over 250 possible characters per channel. Using an Eprom, all messages are programmed and can easily be reprogrammed if necessary for a low $4.50 charge.

Message speed is easily adjustable, or may be connected to an external clock for higher accuracy or C.C.W. operation.

The kit is easy to build, using only four I.C.'s. Please write your specific messages in the space provided when ordering. Comment space is provided for any additional information regarding your message.

Complete JA2A Kit $26.50 postpaid.

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## LP2A BALANCED LOOP PREAMPLIFIER

The Seden Communications LP2A is designed as a station accessory providing balanced, low-noise amplification for loop antennas.

Using low noise JFET circuitry, the LP2A will improve performance adding over 12Db of gain without loading or causing any pattern misalignment.

Both signal and power use a common BNC connector for phantom power from an external supply or directly from the SAM1 Transverter.

Complete instructions include details for recommended loop design for 1750 Meters. If you plan to use this with a pre-existing loop antenna, please indicated frequency of interest and, if possible, inductance of your loop.

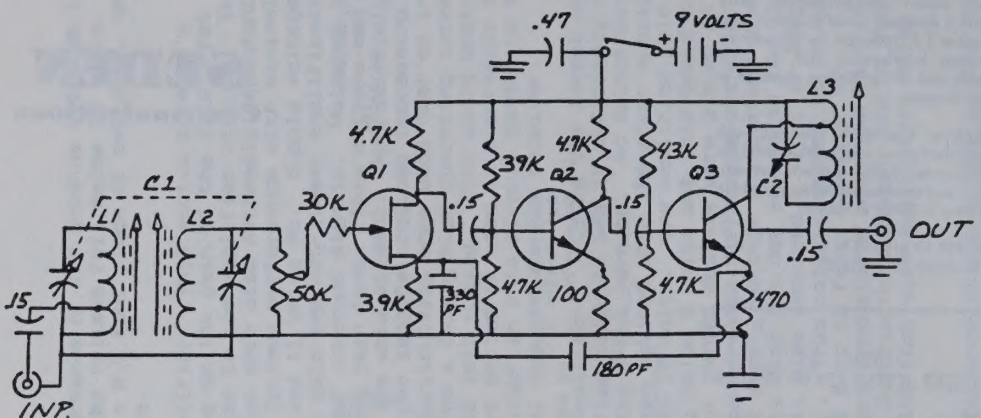
Complete LP2A Kit $22.00 postpaid.

Please tear here

# LOW FREQUENCY PREAMP

## OPERATING RANGE IS 150-400 KHZ; +30DB GAIN

by: Ed Gelinas ("T" beacon, Sunnyvale, CA)



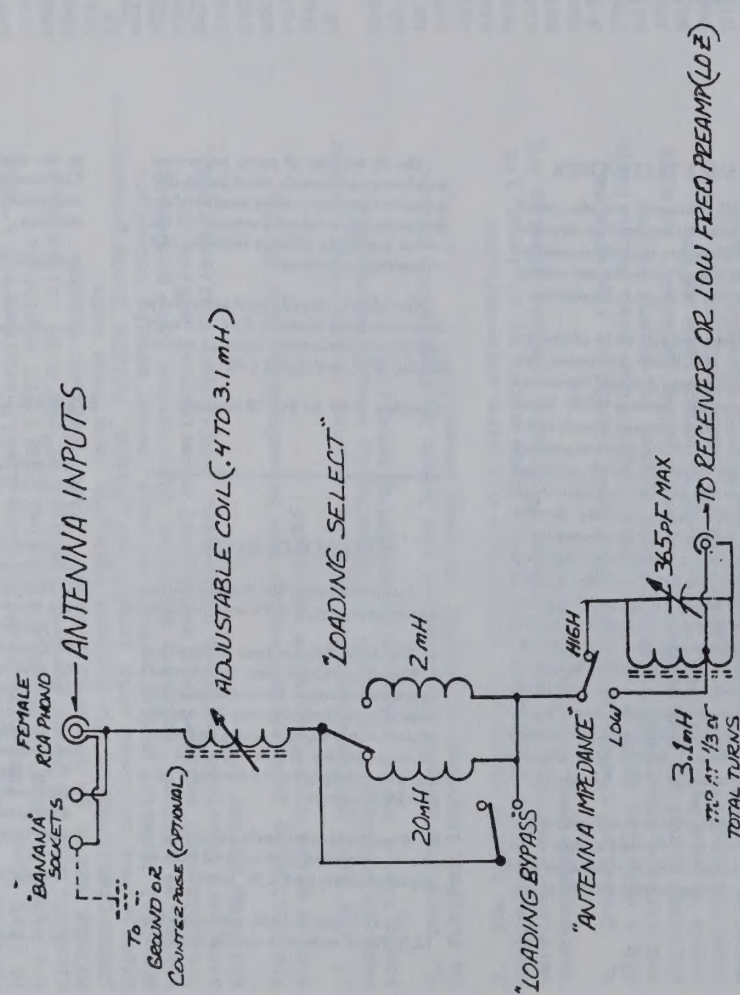

C1, C2: 335pF-PER-SECTION MINIATURE VARIABLE (RADIO SHACK # 272-1337)
L1, L2, L3: 3100μH SLUG TUNED COIL, TAPPED AT 1/3 OF TOTAL TURNS. (J W MILLER # 9014 OR EQUIV)
Q1; MPF 102 Q2, Q3: 2N918 (OR EQUIV)

SPACING OF L1 & L2 IS 1.5 COIL DIAMETERS
C1 USES BOTH SECTIONS. C2 USES ONLY ONE.
ADJUST C1 & C2 FOR PEAK SIGNAL LEVEL OR BEST S/N RATIO. GAIN-BANDWIDTH IS APPROX 10 KHZ @ 165 KHZ.

# LOW FREQUENCY ANTENNA COUPLER

EFFECTIVE COVERAGE IS 150-400 KHZ
WILL OPTIMIZE RANDOM LENGTH WHIP OR WIRE ANTENNAS TO A PARTICULAR FREQUENCY.

by: Ed Gelinas ("T" beacon, Sunnyvale)




THE 2 & 20 MILLIHENRY COILS ARE R.F. CHOKES
THE REMAINING COILS ARE ADJUSTABLE J.W. MILLER UNITS.

SWITCH POSITIONS ARE SELECTED FOR BEST SIGNAL LEVEL OR S/N RATIO.

1-89 ED; WA6AJY

# WESTERN UPDATE ACTIVE LIST as of April 15, 1989

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Anderson | Bruce | BA | W9PNE | PO Box 14 | Lancaster | IL | 62855 | (618)299-2441 |
| Armstrong | Lloyd | | | 3813 Lancaster Drive | Pueblo | CO | 81005-3065 | |
| Babcock | David | | WA6EBH | 2940 Cheyenne Road | Riverside | CA | 92506 | |
| Bahr | Leland | LEE | W0VT | 914 Golden Bear Lane | Kingwood | TX | 77339-2914 | (713)359-5284 |
| Baker | Brad | | | 21024 Bear Creek Road | Los Gatos | CA | 95030 | |
| Balfour | Herb | OHH | VE3OHH | 91 Elgin Mills Road West | Richmond Hill (Canada) | ONT | L4C4M1 | (416)884-5355 |
| Barlow | Ron | | N4GJV | Route 1, Box 297 | Cleveland | NC | 27013 | |
| Bauer | Frank | FB | W6FPO | PO Box 1086 | Felton | CA | 95018 | (408)335-7392 |
| Bittner | Mike | | | 27215 Sunnyridge Road | Palos Verdes | CA | 90274 | |
| Bond | Robert | | WD6BCN | 1420 McLoughlin Avenue | Oxnard | CA | 93035 | (805)985-0159 |
| Borglum | James | | | 5549 Lesa Road | La Mesa | CA | 92041 | (619)464-3250 |
| Bowers | William | | | 11542 South Kirkwood | Stafford | TX | 77477 | (713)530-4364 |
| Bradley | Dave | | W6CUB | PO Box 23922 | San Jose | CA | 95153 | |
| Bumpus | Carle | | | 930 Idylberry Road | San Rafael | CA | 94903 | |
| Burhans | Ralph | | | 161 Grosvenor Street | Athens | OH | 45701 | (614)593-8207 |
| Buttschardt | Cliff | HDOMBAY, C | W6HDO | 950 Pacific Street | Morro Bay | CA | 93442-2327 | (805)772-2132 |
| Carter | Max | MAX | | 46 - 14th Street | Wheatland | WY | 82201 | (307)322-9439 |
| Cathell | Frank | H,D,H2 | K3YAZ | PO Box 535 | Descanso | CA | 92016 | (619)445-8167 |
| Chappell | Vernon | | | 4511 - 36th Street | San Diego | CA | 92116 | (619)283-8317 |
| Coote | James | J | WB6AAM | 808 North Ave 66 | Los Angeles | CA | 90042 | (213)258-7490 |
| Cornell | Ken | | W2IMB | 225 Baltimore Avenue | Pt. Pleasant Beach | NJ | 08742 | |
| Costa | Bob | | KB6QXM | P.O. Box 600 | Redwood Estates | CA | 95044 | (408)353-3656 |
| Cripe | David | | | 7908 Wellesley Court | Pasadena | MD | 21122 | |
| Curry | David | PLI | WD4PLI | 852 N Lima Street | Burbank | CA | 91505 | (818)846-0617 |
| Cutler | Robert | CO | K1OG | 701 19th Street | Glenwood Springs | CO | 81601 | |
| DeVaughn | Bob | NBD | K3NBD | 829 Estella Street | Pittsburgh | PA | 15210 | (412)488-1479 |
| Dorman | Mike | | | 15635 21st Ave. SW | Seattle | WA | 98166 | (206)246-3796 |
| Erickson | Jim | EK | KG6EK | 226 Charles Street | Sunnyvale | CA | 94086-6063 | (408)773-8947 |
| Farkas | Greg | AZ | AK7Y | PO Box 17074 | Tucson | AZ | 85731-7074 | (602)749-4796 |
| Farnsworth | Charles | | | 506 Rutledge Drive | Lodi | CA | 95240 | |
| Faulkner | Charles | FPV | W6FPV | 15844 McKeever | Granada Hills | CA | 91344 | (818)366-6210 |
| Fisher | Montie | | WA5TSL | 808 Brett Drive | Edmond | OK | 73013 | |
| Forsman | Stan | | | 1312 Burrows Road | Campbell | CA | 95008 | (408)374-2129 |
| Gelinas | Ed | T(dashes) | WA6AJY | 557 N Bayview | Sunnyvale | CA | 94086 | |
| Gosenca | Michael | | | 203 Cherry Street | Eaton Rapids | MI | 48827 | |
| Hedspeth | Scott | N3S | WB4YZA | Route 4, Box 146 | Mocksville | NC | 27028 | (704)284-4021 |
| Helms | Bernard | | | 4210-1 Walnut | Berrien Springs | MI | 49103 | |
| Holland | David | DCH | K3YAY | 300 South Main Street | Berlin | MD | 21811 | |
| Hooper | William | | KF6AR | 366 S. El Monte Road | Los Altos | CA | 94022 | |
| Horton | Bob | MSG | W6MSG | 2 Fresno Street | Paso Robles | CA | 93446 | (805)238-2250 |
| Humphrey | Lee | | WD5BTU | Rt. 2, Box 449 | Jasper | TX | 75951 | (409)384-9489 |
| Isbell | Daryl | | KB5EDW | Box 2146 C.S. | Socorro | NM | 87801 | (505)835-1395 |
| Johnson | Dave | | | PO Box 389 | Gainesville | FL | 32602 | |
| Johnson | Dave | F | | 713 Texas Ave. | Los Banos | CA | 93635 | (209)826-0841 |
| Johnson | David | | WB7ACG | PO Box 15646 | Rochester | NY | 14615-0646 | (716)235-1104 |
| Johnson | Don | AU | W9TIF | 3304 Roxford | Champaign | IL | 61821 | (217)398-4020 |
| Johnston | David | 9HDQ | K9HDQ | RR1, Box 108C | Daleville | IN | 47334 | (317)354-2884 |
| Jones | Ron | | K7RJ | 9241 S. Toni Lee Circle | West Jordan | UT | 84088 | (801)561-2685 |
| Jones | Wallie | WJ | W6SZQ | 9090 Nagle Ave. | Arleta | CA | 91331 | (818)892-0552 |
| Kassel | Charles | | | 114 Church Drive | Mastic Beach | NY | 11951 | |
| Keeley | Roy | | KC4IMC | Route 3, Box 316 Salt Air Rd | Theodore | AL | 36582 | (205)973-2516 |
| Keller | Eb | | | 2984 Fallwood Lane | San Jose | CA | 95132 | (408)263-6229 |
| Kincaid | Nilan | | W6EIG | 5529 W 140th Street | Hawthorne | CA | 90250 | (213)643-5269 |
| Knight | David | | | 4240 Fay Road | Syracuse | NY | 13219 | |
| Kraus | Howard | K2UD | | 372 Callodine Avenue | Amherst | NY | 14226 | |
| Lagrua | Michael | | | Box 549 | Caspian | MI | 49915-0549 | (906)265-5724 |
| Layer | Hal | | N6SPD | PO Box 27676 | San Francisco | CA | 94127 | (415)661-6958 |
| Lee | Mitchell | MEL | KB6FPW | 172 North 24th Street | San Jose | CA | 95116 | (408)298-3026 |
| Leonardelli | John | | VE3IPS | Box 722, Station A | Downsview (Canada) | ONT | M3M3A9 | (416)636-3300 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Lingwall | John | | | PO Box 70 | Calhan | CO | 80808 |
| Lundgren | Carl | TH | W2AZO | 60 Woodhollow Road | Colts Neck | NJ | 07722 (201)842-4780 |
| Mallory | Mark | MPM | WB7CAK | 5196 Cobblecreek Road #7K | Salt Lake City | UT | 84117 |
| Manley | Dean | | KH6B | 2058 Ainaola Drive | Hilo | HI | 96720-3638 (808)959-8257 |
| Marineau | Patrick | | K9HF | 3443 Illinois Avenue | St. Louis | MO | 63118 |
| Marshall | Dave | | | 440 Larry Drive | Florissant | MO | 63033 |
| Martin | Steve | | NK3R | 141 Bridgecreek Drive | Goose Creek | SC | 29445 (803)797-3143 |
| Mawhinney | Scott | T (dashes) | | 295 Pettis Avenue | Mountain View | CA | 94041 (415)960-1041 |
| Maxwell | James | | W6CF | PO Box 473 | Redwood Estates | CA | 95044 (408)353-2094 |
| McGreevy | Steve | SS, TLX | N6NKS | 45 Elda Drive | San Rafael | CA | 94903 (415)479-4259 |
| Mideke | Mike | Z2 | WB6EER | Box 123 | San Simeon | CA | 93452 |
| Morgan | Robert | | KA0FTA | 2817 West St. Anne | Rapid City | SD | 57702 |
| Nickerson | Rick | R | KB6JOJ | 3224 Saxonville Way | Sacramento | CA | 95842 (916)348-1466 |
| Olson | Keith | 7FS | W7FS | E 15470 Highway 106 | Belfair | WA | 98528 (206)275-2560 |
| Otacilio P de Sousa | Jose' | | | Rua Calisto 62, Recanto dos Vinhais | Sao Luis, MA, Brasil, PR3BNP | | 65070 |
| Owens | James | O | NW0O | 1363 Tipperary | Boulder | CO | 80303 |
| Paschal | Ev | | | 2005 K. Avenue | Anacortes | WA | 98221 (206)293-8176 |
| Pepe | Bill | | WA2TDR | Box 1915 | Bloomfield | NJ | 07003 |
| Peterson | Art | | | 851 31st Street | Richmond | CA | 94804 (415)234-2014 |
| Phillips | Ed | IZJ | W6IZJ | 408 North Alabama Street | San Gabriel | CA | 91775 (818)285-8308 |
| Pomer | Zvi | | 4X1KT | 5703 Caminito Norte | LaJolla | CA | 92037 |
| Pomplun | Don | | K2BIO | 521 Van Buren Place | San Ramon | CA | 94583 (415)829-7648 |
| Post | Kendall | | | 1842 Hoffman Street | Madison | WI | 53704 (608)244-0500 |
| Raney | David | UPN | WC8E | 4128 Linden Avenue | Cincinnati | OH | 45236 (513)791-0740 |
| Rappold | Sam | ZYK | WB6ZYK | PO 1267/479 Briceland Road | Redway | CA | 95560 |
| Ratzlaff | Steve | SR | AA7U | 900 Henderson / 60A | Sunnyvale | CA | 94086-9059 (408)248-0343 |
| Raven | Gregory | TEXAS | KF5N | 4550 Sunnybank Court | Fort Worth | TX | 76137 (817)485-6771 |
| Reid | Frank | | W9MKV | Box 5283 | Bloomington | IN | 47407-5283 |
| Remington | Sheldon | HO | NI6E | PO Box 2094 | Pahoa | HI | 96778 |
| Roberts | Todd | ABC | WD4NGG | PO Box 21413 | Hilton Head Island | SC | 29925 (803)681-8114 |
| Satterthwaite | Ed | | | 4189 Willmar Drive | Palo Alto | CA | 94306 |
| Schick | DH | | | 580 N Buena Vista Dr. | Lake Alfred | FL | 33850 |
| Schumacher | Jon | NYA | K7NV | Star Rt., Box 55255 | Pahrump | NV | 89041 |
| Seamons | John | JKS | KF6YO | 95 Holstein Road | San Anselmo | CA | 94960 (415)456-6090 |
| Seden | Randy | ELU | WD6ELU | 1272 Harold Avenue | Simi Valley | CA | 93065 (805)583-5687 |
| Sethman | Bob | | | 92 Allen Plan | Donora | PA | 15033 |
| Skillin | Boyd | B | K6MGX | 3876 East Pico | Fresno | CA | 93726 (209)222-0275 |
| Smith | Glen | | N6CX | 220 Laurel, POB 475 | Kenwood | CA | 95452 |
| Smith | Randy | | | 19515 Frederick Rd #135 | Germantown | MD | 20874 |
| Snow | John | | N6AMZ | 3708 Judah Street | San Francisco | CA | 94122-1227 |
| Spaulding | Fred | | K1YQP | 883 San Simeon Drive | Mountain View | CA | 94043 (415)961-5018 |
| Spencer | Chris | FAW | WB7FAW | 722 West 1850th North | Orem | UT | 84057 (801)225-7852 |
| Statom | Mike | | | 1604 S. Campbell Avenue | Alhambra | CA | 91803 (818)289-7170 |
| Stewart | Dan | | | 2617 Anza Street | Bakersfield | CA | 93305-3109 (805)871-7024 |
| Stinson | Dave | R, NTS | AB5S/7 | 3550 Paradise #740 | Las Vegas | NV | 89109 (702)732-4069 |
| Sullivan | John | | | 2069 Touraine Lane | Half Moon Bay | CA | 94019 |
| Taylor | Al | | | 112 Cook Road | Whitehorn | CA | 95489 (707)986-7775 |
| Thompson | Arliss | XU | W7XU | RR#3, Box 224 | Sioux Falls | SD | 57106 (605)368-2305 |
| Tracy | John | | WB7AMC | 10431 Miller Avenue | Cupertino | CA | 95014 (408)257-9585 |
| Turner | Clint | CT | KA7OEI | 145 West Street | Pleasant Gap | PA | 16823 (814)359-2663 |
| Vanderbeek | Herb | G, V, 8-dits | WY6G | 630 Ashton Avenue | Palo Alto | CA | 94306 (415)493-1726 |
| Vandermaaten | Jim | SM | WB6QZL | 1276 Tourney Drive | San Jose | CA | 95131 (408)258-6872 |
| Waldsmith | Gary | SUK | K4SUK | 1441 Hound Hollow Road | Pilot Hill | CA | 95664 (916)933-3815 |
| Weiss | Jim | | W9ZMY | c/o Radio WTAQ | LaGrange | IL | 60525 (312)579-9104 |
| Welch | James | | KK6N | 3071 Mauricia Avenue | Santa Clara | CA | 95051 |
| Whipple | Dan | | | 11726 Norway Street | Coon Rapids | MN | 55433 |
| Wilson | Rex | TI | KB7TI | 4550 Vernetti Lane | Kingman | AZ | 86401 (602)757-3649 |
| Wright | Rick | ISUN | KA5YWH | Box 4181, Station A, SEOSU | Durant | OK | 74701 (405)924-3699 |
| Wyatt | Frank | | N6FW | 855 Ticonderoga Drive | Sunnyvale | CA | 94087 (408)737-8155 |